

APPENDIX D

Disasters Affecting the San Francisco Bay Area 1950 - 2000

The California Office of Emergency Services has compiled two lists of disasters affecting the State, including the San Francisco Bay Area – one for the period from 1950 – 1999, and a second for more recent disasters. The following list of 56 disasters affecting all or part of the nine-county Bay Area during that 51-year period is extracted from those lists (of 181 disasters statewide). All but seven of these disasters are caused by natural hazards, for an average of almost one natural disaster affecting all or part of the San Francisco Bay Area every year.

11/50

Floods

Declared: statewide CA OCD 50-01(11/21/50)

Federal: not declared

9 deaths

Damage: Sacramento River Basin above Delta-\$4,983,000; Sacramento-San Joaquin Delta-\$4,550,000; San Joaquin River Basin-Consumnes River to Upper San Joaquin River-\$11,460,000; Upper San Joaquin River Basin-Kings River to Kern River-\$11,190,000; TOTAL-\$32,183,000

12/55

Floods

Declared: statewide CD 47-DR-CA (12/22/55)

Federal: 12/23/55

74 deaths

Damage: \$200 million

5/57

Unseasonal and Heavy Rainfall

Declared: State of Emergency—cherry producing areas of Northern California (requested by Department of Agriculture) 5/20/57

Federal: not declared

no deaths, 2 injuries

Damage: \$6 million in agricultural losses

2/58

Storm And Flood Damage

Declared: Northern California (Southern boundaries of Santa Cruz, Santa Clara, Stanislaus, Tuolumne, Alpine Counties to the Oregon border) CDO 58-03 (2/26/58)

Federal: not declared

Damage: not available

4/58

Storm and Flood Damage

Declared: statewide (4/2/58)

Federal: 82 (4/4/58)

13 deaths, several injuries

Damage: \$20 million, plus \$4 million agricultural

9/59

Unseasonal and Heavy Rainfall

Declared: Tokay grape producing areas of Northern California (requested by Dept. of Agriculture) (9/19/59)

Federal: not declared

2 deaths

Damage: \$100,000

9/61

Widespread Fires

Declared: Amador, Butte, El Dorado, Napa, Nevada, Placer, San Diego, Sonoma, Tehama (9/8/61)

Federal: not declared

Damage: public-\$243,000; private-\$4,183,098; watershed-\$1,270,715; TOTAL-\$5,696,813

9/62

Fires and Explosions

Declared: City of San Leandro (Alameda County) (9/14/62)

Federal: not declared

1 death, 12 injuries

Damage: \$500,000

Fall '62

Flood and Rainstorms

Declared: Alameda, Butte, Contra Costa, Modoc, Napa, San Mateo, Sierra, Sutter, Yuba (10/17/62), Placer (10/25/62), Trinity (10/30/62), Lassen (11/4/62)

Federal: 138 (10/24/62) amended to include Placer, Trinity, and Lassen Counties

Damage: \$4 million+

2/63

Abnormally Heavy and Continuous Rainfall

Declared: Northern California (boundaries of San Luis Obispo, Ventura, Los Angeles, and San Bernardino counties to the Oregon State line) (2/14/64)

Federal: not declared

Damage: not available

2/63

Flood and Rainstorms

Declared: Alpine, Nevada, Placer, Plumas, Sierra (2/7/63), Amador, Colusa, El Dorado, Glenn, Lake, Lassen, Tehama, Santa Clara, Santa Cruz, Siskiyou, Yolo, Tulare (2/26/63), Mono, Trinity (2/29/63), Yuba (4/22/63)

Federal: 145 (2/25/63), amended 1/30/63 to include Orange County and Redondo Beach

Damage: not available

9/64

Major and Widespread Fires and Excessively High Winds

Declared: Napa (9/22/64), Sonoma (9/23/64), Santa Barbara (9/25/64)

Federal: not declared

Damage: private-\$3.5 million; watershed-\$13 million; TOTAL-\$16.5 million

Note: By special appropriation, Congress approved \$860,000 for Santa Barbara County. The USDA, through Forest Service programs, spent \$1.044 million for seeding and reestablishing dams in these counties.

9/64

Tsunami Caused by March 1964 Earthquake in Alaska

Declared: Marin (9/15/64) (Tax Relief)

Federal: not declared

Damage: not applicable, only costs were for mitigation

Winter '64-'65

1964 Late Winter Storms

Abnormally heavy and continuous rainfall and windstorm Declared: OEP 183-DR-CA Del Norte, Humboldt, Shasta, Mendocino (12/22/64), Colusa, Glenn, Lassen, Plumas, Sierra, Siskiyou, Sonoma, Sutter, Tehama, Trinity (12/23/64), Amador, Butte, El Dorado, Modoc, Nevada, Placer, Yuba (12/28/64), Alpine, Lake, Sacramento, Yolo (1/5/65), Marin (1/14/65)

Federal: 12/29/64

Damage: public-\$85.327 million; private-\$127.822 million; TOTAL-\$213.149 million

9/65

Major and Widespread Fires

Declared: Marin, Napa, Placer, Solano, Sonoma (9/18/65)

Federal: not declared

no deaths

Damage: not available; 113,766 acres and 41 bldgs. Destroyed

9/66

Riots

Declared: San Francisco (9/27/66)

Federal: not declared

no deaths, 42 injuries

Damage: not available

12/66

Earthslides

Declared: Redwood City (San Mateo County) (12/16/66)

Federal: not declared

Damage: private-\$100,000

8/68

Riots and Other Conditions

Declared: City of Richmond (Contra Costa) (8/2/68)

Federal: not declared

Damage: not applicable (worker strike)

Winter '69

1969 Storms

Storms, flooding

Declared: OEP 253-DR-CA Los Angeles, San Luis Obispo (1/23/69), Fresno, Inyo, Riverside, San Bernardino, Santa Barbara, Tulare, Ventura (1/25/69), Amador, El Dorado, Kern, Kings, Madera, Modoc, Mono, Monterey, Orange, Placer, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Tuolumne (1/28/69), Mariposa, Merced (1/29/69), Calaveras, San Benito, Sierra (2/8/69), Contra Costa, Humboldt, Mendocino, Sonoma (2/10/69), Plumas, Tehama, Yuba (2/16/69), Butte, Marin, Yolo (3/12/69)

Federal: 1/26/69

47 dead, 161 injured

Damage: public-\$185 million; private-\$115 million; TOTAL-\$300 million

12/69

Riots

Declared: City of Berkeley (Alameda County) (2/5/69)

Federal: not declared

no deaths, 20 injuries

Damage: not available

Winter '70

Northern California Flooding

Heavy Winds, Storms, Flooding

Declared: OEP 283-DR-CA Butte, Colusa, Glenn, Lake, Lassen, Marin, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity (1/27/70), Sutter, Yuba (2/3/70), Del Norte (2/10/70), Alameda, El Dorado, Mendocino (3/2/70)

Federal: 2/16/70

Damage: public-\$19,659,078; private-\$7,998,400; TOTAL-\$27,657,478

2/10/70

Slide Damage Caused by Heavy Rains and Storms

Declared: City of Oakland (Alameda County) 2/10/70 (Tax Relief)

Federal: not declared

Damage: \$11.5 million

3/70 (beginning)

Freezing Conditions

Declared: Ag. area of Napa (5/1/70), Ag. area of Sonoma (5/19/70), Ag. area of Mendocino (6/8/70), Ag. community of San Joaquin (6/10/70), Ag. community of Lake (7/24/70)

Federal: not declared

Damage: Agricultural loss \$19,749,200

4/70

Storms And Floods

Declared: Contra Costa (4/10/70) (Tax Relief)

Federal: not declared

Damage: not available

Fall '70

Statewide Fires

Declared: OEP 295-DR-CA City of Oakland (Alameda County 9/24/70), Los Angeles, Ventura, San Diego (9/28/70), Kern (10/1/70), San Bernardino (10/2/70), Monterey, Riverside (10/20/70), San Bernardino (11/14/70)

Federal: 9/29/70 amended 11/25/70 to include San Bernardino

19 deaths

Damage: public-\$52,862,000; watershed-\$24,826,000; private-\$145,923,000 TOTAL-\$223,611,000; 576,508 acres, 722 bldgs. San Bernardino-53,100 acres, 54 bldgs.

Spring '72

Freeze and Severe Weather Conditions

Declared: Fresno, Kings, Tulare, Merced, Kern, Madera, San Benito, Stanislaus, El Dorado, Tehama, Placer, Nevada, San Joaquin (4/17/72), Colusa (5/22/72), Siskiyou, Modoc (5/22/72), Santa Clara (5/31/72)

Federal: not declared

Damage: crop loss-\$111,517,260 4/10/72

Drought Conditions

Declared: Glenn, San Benito, Santa Clara (7/3/73)

Federal: not declared

Damage: agricultural loss-\$8 million

1/73

Coastal Flooding

Heavy rains, winds, floods, and tidal action

Declared: OEP 364-DR-CA Marin, San Luis Obispo (1/23/73), City of South San Francisco (San Mateo County 1/30/73), Santa Barbara, Solano (2/8/73), Ventura (2/28/73)

Federal: 2/3/73

Damage: public-\$5,291,350; private-\$12,706,900; TOTAL-\$17,998,250

2/73

Storms And Floods

Declared: Colusa, Glenn, Napa, Placer, Sutter, Yuba (2/28/73)

Federal: not declared

Damage: public-\$1.357 million; private-\$507,000; TOTAL-\$1.864 million

4/73

Storms and Floods

Declared: City of Pacifica—San Mateo (4/11/73) (Tax Relief)

Federal: not declared

Damage: public-\$450,000; private-\$250,000; TOTAL-\$700,000

5/73

Eucalyptus Tree Freeze

Declared: Alameda, Contra Costa (4/4/73)

Federal: 5/25/73

Damage: removal of approx. 2 million dead trees—\$8-10 million

3/74

Gasoline Purchasing Problems

Declared: Alameda, Contra Costa, Los Angeles, Orange, Riverside, San Mateo, Solano (2/28/74), Santa Clara (3/4/74), Ventura (3/10/74)

Federal: not declared

Damage: not applicable

1976

Drought

Declared: Alpine, Calaveras, Colusa, Fresno, Glenn, Madera, Merced, San Diego, San Joaquin, Solano, Stanislaus, Sutter, Tuolumne (2/9/76), Alameda, Butte, Contra Costa, Kings, Los Angeles, Riverside, San Luis Obispo, Tulare, Yolo (2/13/76), Amador, Monterey, Napa, Nevada, San Benito, San Bernardino, Tehama (2/24/76), San Mateo (3/26/76), Marin (7/6/76)

Federal: not declared

Damage: 1976-\$888.5 million; 1977-\$1.775 billion; TOTAL-\$2.664 billion

1979

Gasoline Shortage Emergency

Declared: Alameda, Contra Costa, Los Angeles, Marin, Monterey, Orange, Riverside, San Francisco, San Diego, Santa Clara, Santa Cruz, San Mateo, Ventura, San Bernardino (11/13/79), San Bernardino (amending boundaries 9/29/79), Monterey (7/13/79), San Bernardino (7/13/79), Riverside (6/22/79), San Bernardino (6/7/79), Monterey (6/7/79), Riverside, (amending boundaries 5/18/79), Monterey, Riverside (portion) (5/11/79), San Mateo, Santa Cruz (5/9/79), San Bernardino (portion 5/8/79), Alameda, Contra Costa, Los Angeles, Marin, Sonoma, Orange, Santa Clara, Ventura (5/8/79)

Federal: not declared

Damage: not applicable

1/80

Delta Levee Break

Rain, high tides, strong winds, and flooding (Holland and Webb Levee breaks)

Declared: FEMA 3078-EM-CA Contra Costa, Sacramento, San Joaquin (1/23/80)

Federal: 1/23/80

Damage: public-\$11,158,700; private-\$1,479,500; agricultural-\$3,887,195; TOTAL-\$17,388,013

3/80

Storms

Rain, winds, mud slides, and flooding

Declared: Stanislaus, Monterey, Solano, Santa Cruz (3/5/80)

Federal: not declared

Damage: *include figures from 2/82. public-\$164,990,642; private-\$75,755,500; agricultural-\$75,894,675; TOTAL-\$316,640,817. These four counties proclaimed in Feb. 1982 but were not included in the Presidential declaration.

Summer '81

Mediterranean Fruit Fly Infestation

Declared: Contra Costa (9/25/81), Los Angeles (8/25/81), San Benito (8/25/81), Stanislaus (8/14/81), Santa Cruz (8/13/81), San Mateo (8/8/81)

Federal: not declared

Damage: \$22 million

6/81

Atlas Peak Fire

Declared: Napa (6/24/81)

Federal: not declared

no deaths

Damage: private-\$11 million; watershed-\$20 million; TOTAL-\$31 million; 23,000 acres burned, 69 structures destroyed

1/82

1982 Winter Storms

Heavy winds, rain, flooding, and mud slides

Declared: FEMA 651-DR-CA Alameda, Santa Clara, Solano, San Joaquin (1/9/82), Contra Costa, Humboldt, Marin, San Mateo, Santa Cruz, Sonoma (1/5/82)

Federal: 1/7/82

33 dead, 481 injured

Damage: public-\$101.400 million; private-\$172.450 million; TOTAL-\$273.850 million; 256 homes and 41 businesses destroyed, 6259 homes and 1276 businesses damaged.

10/82

Rains Causing Agricultural Losses

Declared: Fresno, Madera, Merced, Monterey, Kern, Tulare, Sacramento, San Joaquin, Solano, Stanislaus, Yolo (10/26/82)

Federal: not declared

Damage: agricultural \$345,195,974

12/82

High Tides, Strong Winds, and Rains

Declared: Contra Costa, Sacramento, San Joaquin (12/8/82)

Federal: not declared

Damage: public-\$5,313,198; private-\$1,651,800; TOTAL-\$6,964,998

Winter '82-'83

Winter Storms

Heavy rains, high winds, flooding, levee breaks

Declared: FEMA 682-DR--CA Contra Costa, San Joaquin, Sacramento (12/8/82), Marin, San Mateo, Los Angeles, San Diego (1/27/83), Alameda, Orange, San Benito, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sonoma, Ventura, Trinity (1/31/83), Colusa, Lake, Mendocino, Monterey, San Luis Obispo, Solano, Yolo (2/7/83), Butte, Glenn, Kern, Kings, San Bernardino, Sutter Tehama, Merced (3/3/83), Del Norte, Fresno, Madera, Napa, Placer, Riverside, Stanislaus, Tulare (3/15/83), Humboldt, Mariposa, Nevada, Yuba (3/21/83)

Federal 2/9/83

Damage: public-\$151,185,870; private-\$158,641,170; agricultural-\$213,789,992; TOTAL-\$523,617,032

12/83

Levee Failure, High Winds, High Tides, Floods, Storms, Wind Driven Water

Declared: Contra Costa (12/9/83), Alameda (1/18/84)

Federal: not declared

Damage: public-\$7,240,785; private-\$2.669 million; agricultural-\$1 million; TOTAL-\$10,909,785

4/84

Morgan Hill Earthquake

6.2M

Declared: Santa Clara

Federal: FEMA 4043-EM-CA (4/25//84

no deaths, 27 injuries

Damage: public-\$365,000; business-\$1.7 million; private-\$5.2 million; TOTAL-\$7.265 million

6/85

Statewide Fires

Declared: FEMA 739-DR-CA San Diego (7/1/85), City of Los Angeles (7/3/85), San Luis Obispo (7/8/85), Monterey, Santa Clara, Santa Cruz (7/9/85), Ventura (7/11/85)

Federal: 4/25/84

3 deaths, 470 injured (124 civilians, 346 firefighters)

Damage: public-\$34,751,400; private-\$30,094,464; TOTAL-\$64,845,864; 375,000+ acres, 215 homes destroyed; 131 homes and businesses damaged; 71 miscellaneous structures and vehicles destroyed

2/86 (beginning)

Storms

Rains, winds, flooding, and mud slides

13 deaths, 67 injuries

Declared: FEMA 758-DR-CA Humboldt, Napa, Sonoma (2/18/86), Glenn, Lake, Marin, Modoc, Sacramento, Santa Clara, Santa Cruz, Solano, Yuba (2/19/86), Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Lassen, Mendocino, Nevada, Placer, Plumas, San Joaquin, Sierra, Sutter, Tehama, Tuolumne, Yolo (2/20/86), Fresno, Madera, San Mateo (2/26/86), Alameda, Contra Costa, Del Norte, Trinity (3/4/86), Mono, San Benito, Shasta (3/12/86)

Federal: 2/18/86

Damage: public-\$157,987,493; private-\$249,551,411; TOTAL-\$407,538,904; 12,447 homes damaged; 1,382 homes destroyed; 967 businesses damaged; 185 businesses destroyed

9/88

Fires (49er, Miller, and Fern)

Declared: FEMA 815-DR-CA Shasta, Solano (9/20/88, beginning 9/17/88), Yuba, Nevada (9/13/88, beginning 9/11/88)

Federal: 9/13/88

no deaths

Damage: public-\$31,247,534; business-\$2,533,100; private-\$18,033,800; TOTAL-\$31,247,534; 238 homes destroyed, 41 homes damaged; 29 businesses destroyed

8/89

Mediterranean Fruit Fly

Declared: Santa Clara (9/6/89)

Federal: not declared

Damage: not applicable—damage was avoided

10/89

Loma Prieta Earthquake

7.1M

Declared: FEMA 845-DR-CA Alameda, Monterey, San Benito, San Mateo, Santa Clara, Santa Cruz, San Francisco (10/18/89), Contra Costa, Marin, City of Isleton (10/23/89), City of Tracy, Solano (10/30/89)

Federal: 10/18/89

63 deaths, 3,757 injuries (10/18/89)

Damage: Alameda \$1,479,104,500, Contra Costa \$25 million, Monterey \$108 million, San Benito \$103.55 million, San Francisco \$2 billion, San Mateo \$292,941,001, Santa Clara \$727.7 million, Santa Cruz \$1.526 million, \$500 million to \$1 billion damage in roads and bridges, \$20 million in state government buildings. Total: \$5.9 billion; 23,408 homes damaged, 3,530 businesses damaged, 1,018 homes destroyed, 366 businesses destroyed.

12/90 (beginning)

Freeze

Declared: FEMA 894-DR-CA Santa Cruz (12/28/90), Fresno, Glenn, Imperial, Kern, Mendocino, Monterey, Riverside, San Benito, San Bernardino, San Diego, San Mateo, Santa Barbara, Santa Clara, Solano, Sonoma, Tulare, Ventura (1/11/91), Alameda, Butte, Colusa, Los Angeles, Madera, Marin, Merced, Napa, San Joaquin, San Luis Obispo, Sutter, Yolo, Yuba (1/18/91), Stanislaus, Tehama (2/14/91, beginning 12/19/90)

Federal: 2/11/91

Damage: public buildings-\$2,330,353; utilities-\$1,614,040; crop damage-\$852,385,282; TOTAL-\$856,329,675; 500 broken pipes, affecting 5,400 homes

10/91

East Bay Hills Fire

Declared: Alameda County, 10/20/91)

Federal: 919 (10/22/91)

25 deaths, 150 injuries

Damage: \$1.7 billion; 3,354 family dwellings and 456 apartments destroyed

12/92

1992 Late Winter Storms

Snow, rain, and high winds

Declared: FEMA 979-DR-CA Alpine, Los Angeles (2/19/93), Humboldt, Napa, Santa Barbara, Culver City and the City of Los Angeles (2/8/93, for event beginning 1/25/93), Contra Costa, Mendocino, Sonoma (1/25/93, for event beginning 1/25/93), Fresno, Imperial, Madera, Monterey, San Bernardino, Sierra, Tehama, Trinity, and Tulare (1/21/93, for event beginning 1/19/93), Modoc, Orange, Riverside (1/19/93, for event beginning 1/15/93), Lassen, Siskiyou (1/15/93, for event beginning 1/13/93), Plumas (1/13/93, for event beginning 1/12/93), San Diego (1/7/93, for event beginning 1/7/93)

Federal 1/15/93

20 deaths, 10 injuries

Damage: public property-\$32,215, \$600 million

1/95

Severe Winter Storms

Declared: FEMA 1044-DR-CA Los Angeles, Orange (1/6/95), Humboldt, Lake, Sonoma (1/9/95), Butte, Colusa, Contra Costa, Del Norte, Glenn, Kern, Lassen, Mendocino, Modoc, Monterey, Napa, Placer, Plumas, San Luis Obispo, Santa Barbara, Santa Clara, Santa Cruz, Tehama, Ventura, Yolo, Yuba (1/10/95), Alpine, Amador, Nevada, Riverside, Sacramento, San Bernardino, San Mateo, Shasta, Sutter, Trinity (1/11/95), San Diego (1/13/95), Alameda, Marin (1/14/95), Fresno, Kings (1/17/95), El Dorado (2/15/95), Madera, Solano (2/17/95), Siskiyou (3/14/95)

Federal-1044 (1/13/95)

11 deaths

Damage: public-\$299.6 million; individual-\$128.4 million; businesses \$58.4 million; highways-\$158 million; ag-\$97 million; TOTAL-\$741.4 million; damage to homes: major-1,883; minor-4,179; destroyed-370.

2/95

Late Winter Storms

Declared: FEMA 1046-DR-CA 57 counties (all except Del Norte).

Federal: 1/10/95

17 deaths

Damage: public property-\$190.6 million; individual-\$122.4 million; business-\$46.9 million; highways-\$79 million; ag-\$651.6 million; TOTAL-approximately \$1.1 billion; damage to homes: major-1,322; minor-2,299; destroyed-267

12/96 to 1/97

January 1997 Floods

Declared: Alpine, Amador, Butte, Colusa, Del Norte, El Dorado, Glenn, Humboldt, Lake, Lassen, Modoc, Napa, Nevada, Plumas, Sacramento, San Joaquin, Sierra, Siskiyou, Solano, Sonoma, Sutter, Tehama, Trinity, Yuba (1/2/97); Calaveras, Madera, Mono, Monterey, Placer, San Benito, San Luis Obispo, San Mateo, Santa Cruz, Shasta, Stanislaus, Tuolumne, Yolo (1/3/97); Contra Costa, Fresno, Marin, Tulare (1/5/97); Mariposa (1/6/97); Merced, Santa Clara (1/10/97); Alameda, San Francisco (1/19/97); Kings, San Luis Obispo (1/31/97).

Federal: all 48 counties listed above

8 deaths

Damage: \$1.8 billion

Add: 300 square miles of land flooded; 23,000 homes, 2,000 businesses damaged or destroyed.

2/2/98

El Nino

Declared: Alameda, Amador, Butte, Calaveras, Colusa, Contra Costa, Fresno, Glenn, Humboldt, Kern, Kings, Lake, Los Angeles, Marin, Mendocino, Merced, Monterey, Napa, Orange, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tulare, Ventura, Yolo, Yuba.

Federal: All above except Kings and Siskiyou counties

17 deaths

Damage: \$550 million

9/3/00

Napa Earthquake

Declared: Napa

Federal: not provided by OES

Damage: not provided by OES